CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2005-_____

NPDES NO. CA CA0081507

FOR

SHASTA COUNTY SERVICE AREA NO. 17
COTTONWOOD WASTEWATER TREATMENT PLANT
SHASTA COUNTY

This Monitoring and Reporting Program (MRP) is issued pursuant to California Water Code Sections 13267 and 13383 and describes requirements for monitoring domestic wastewater, treated effluent, and receiving water. The Discharger shall not implement any changes to this MRP unless and until the Regional Board or Executive Officer approves such changes. Regional Board staff shall approve specific sample station locations prior to implementation of sampling activities.

All samples shall be representative of the volume and nature of the discharge or material sampled. The time, date, and location of each sample shall be recorded on a chain of custody form for the sample.

All water quality sampling and analyses shall be performed in accordance with the Monitoring and Reporting Requirements as outlined in the Standard Provisions of this Order. Water quality sample collection, storage, and analyses shall be performed according to 40 CFR Part 136, or other methods approved and specified by the Executive Officer. Water and waste analyses shall be performed by a laboratory approved for these analyses by the State Department of Health Services (DHS), except when a certified laboratory is not reasonably available to the Discharger, in which case a non-certified laboratory operating in compliance with an approved Quality Assurance-Quality Control program may be used.

Field test instruments (such as those used to test temperature, pH, dissolved oxygen, or other constituents amenable to such instrumentation) may be used provided that:

1. The operator is trained in proper use and maintenance of the instruments;

2. The instruments are calibrated in accordance with the manufacturers recommendations and the method has been accepted by Regional Board staff;

3. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and

4. Field calibration reports are submitted as described in the “Reporting” section of this MRP.

INFLUENT MONITORING

Samples shall be representative of the influent for the period sampled. The following shall constitute the influent monitoring program:

Constituent	Unit	Type of Sample	Sampling Frequency
Flow	mgd	Meter	Continuous
20^oC, BOD_5	mg/L, lbs/day	24-Hr. Composite	Weekly
Total Suspended Solids	mg/L, lbs/day	24-Hr. Composite	Weekly

EFFLUENT MONITORING

Effluent samples shall be collected downstream from the last connection through which wastes can be admitted into the outfall. Effluent samples should be representative of the volume and nature of the discharge. Composite samples may be taken by a proportional sampling device approved by the Executive Officer, or by grab samples composited in proportion to the flow. For grab samples, the sampling interval shall not exceed 1 hour. The time of collection of grab samples shall be recorded. The following shall constitute the effluent monitoring program:

Constituent	**Unit**	**Type of Sample**	**Sampling Frequency**
Chlorine Residual[1]	mg/L	Flow through	Continuous
pH	pH Units	Grab	Daily
Flow	MGD	Cumulative	Daily
Settleable Solids	mL/L	Grab	Weekly
20^oC, BOD_5	mg/L, lbs/day	24-hour composite	Weekly
Total Suspended Solids	mg/L, lbs/day	24-hour composite	Weekly
Temperature	ºF	Grab	Weekly
Total Coliform[2]	MPN/100 mL	Grab	Weekly
Total Copper	ug/L	Grab	Monthly
Total Zinc	ug/L	Grab	Monthly
Cyanide	ug/L	Grab	Monthly
Bromoform	ug/L	Grab	Monthly
Bromodichloromethane	ug/L	Grab	Monthly
Chloroform	ug/L	Grab	Monthly
Dibromochloromethane	ug/L	Grab	Monthly
Bis-2-Ethylhexylphthalate[3]	ug/L	Grab	Monthly
Ammonia Nitrogen [4,5]	mg/L, lbs/day	Grab	Quarterly
Electrical Conductivity	umho/cm	Grab	Quarterly
Total Dissolved Solids	mg/L	Grab	Quarterly
Nitrate Nitrogen	mg/L, lbs/day	Grab	Quarterly
TKN	mg/L, lbs/day	Grab	Quarterly
Acute Toxicity [6]	% Survival	---	Quarterly
Chronic Toxicity [7]	---	---	Annually

Constituent	Unit	Type of Sample	Sampling Frequency
Total Phosphorus	mg/L	Grab	Annually
Oil and Grease	mg/L	Grab	Annually
Priority Pollutants[8]	---	Grab	As described below

[1] Daily grab sample shall be adequate until installation of continuous measurement device is installed, as required by this Order.
[2] Coliform samples shall be obtained during the peak hourly flow for the day.
[3] Monitoring for bis-2-ethylhexylphthalate may be eliminated if it is not detected above the laboratory ML for a period of 24 months.
[4] Concurrent with biotoxicity monitoring.
[5] Report as both total and un-ionized ammonia.
[6] The acute bioassay samples shall be analyzed using EPA/821-R-02-12, Fifth Edition, or later amendment with Regional Board approval. Temperature and pH shall be recorded at the time of bioassay sample collection. Test species shall be salmonids, with no pH adjustment unless approved by the Executive Officer. Sample concurrent with ammonia sampling. Effluent shall be monitored in accordance with procedures described below.
[7] Effluent shall be monitored in accordance with procedures described below.
[8] Samples shall be analyzed for the toxic priority pollutants identified by the California Toxics Rule at 40 CFR 131.38. Effluent samples shall be collected simultaneously with receiving water samples to be analyzed for the CTR pollutants. Monitoring shall be conducted in accordance with procedures described below.

UNDERDRAIN SYSTEM DISCHARGE MONITORING

Underdrain system discharge samples shall be collected when the system is discharging. Monitoring shall include at least the following:

Constituent	Unit	Type of Sample	Sampling Frequency
Flow	gpm	Volume/Time Calc.	Weekly
Total and Fecal Coliform[1]	MPN/100 mL	Grab	Monthly

[1]When discharging. If the detected Fecal Coliform concentration exceeds 200 MPN/100mL, then the monitoring frequency shall be increased to weekly, until the Fecal Coliform concentration falls below 200 MPN/100mL for 4 consecutive weekly measurements, or the Executive Officer of the Regional Board authorizes an alternate sampling program.

SLUDGE MONITORING

A composite sample of sludge shall be collected annually, during any year that sludge is removed from the sludge drying beds, in accordance with USEPA's *POTW Sludge Sampling and Analysis Guidance Document, August 1989*, and tested for the following metals:

Cadmium	Lead
Chromium	Nickel
Copper	Zinc

Sampling records shall be retained for a minimum of 5 years. A log shall be kept of sludge quantities generated, and of handling and disposal activities. The log should be complete enough to serve as a basis for part of the annual report.

The Discharger shall submit a Sludge Management and Disposal Plan annually by **30 January** that includes:

1. Annual sludge production in dry tons and percent solids.

2. A schematic diagram showing sludge-handling facilities and a solids flow diagram.

3. Depth of application and drying time for sludge-drying beds.

4. A description of disposal methods, including the following information related to the disposal methods used at the facility. If more than one method is used, include the percentage of annual sludge production disposed by each method.

    a. For **landfill disposal**, include: (1) the Board's waste discharge requirement numbers that regulate the landfill(s) used; (2) the present classifications of the landfill(s) used; and (3) the names and locations of the facilities receiving sludge.

    b. For **land application**, include: (1) the location of the site(s); (2) the Board's waste discharge requirement numbers that regulate the site(s); (3) the application rate in lbs/acre/year (specify wet or dry); and (4) subsequent uses of the land.

    c. For **other disposal methods**, include: (1) the location of the site(s); and (2) the Board's waste discharge requirement numbers that regulate the site(s).

RECEIVING WATER MONITORING

All receiving water samples shall be grab samples. Receiving water samples shall be taken from the following:

Station	Description
R-1	Approximately 100 feet upstream of discharge.
R-2	Approximately 100 feet downstream of discharge.

Constituent	Unit	Station	Sampling Frequency
Flow[1]	cfs	See Order	Daily
Dissolved Oxygen	mg/L	R-1, R-2	Weekly
Total and Fecal Coliform	MPN/100 mL	R-1, R-2	Weekly
pH	pH Units	R-1, R-2	Weekly
Turbidity	NTU	R-1, R-2	Weekly
Chlorine Residual	mg/L	R-2	Weekly

Constituent	Unit	Station	Sampling Frequency
Hardness	mg/L	R-1	Monthly
Temperature	°F	R-1, R-2	Monthly
Total and Dissolved Copper	ug/L	R-1	Quarterly
Total and Dissolved Zinc	ug/L	R-1	Quarterly
Electrical Conductivity	µmho/cm	R-1, R-2	Quarterly
[1] If existing stream flow gage information is not accurate, an estimate of the receiving water flow shall be adequate until installation of a permanent stream flow gage is completed, as required by the Order.			

In conducting the receiving water sampling, a log shall be kept of the receiving water conditions at the monitoring stations. Notes on receiving water conditions shall be summarized in the monitoring report. Receiving water shall be inspected for the presence or absence of:

a. Floating or suspended matter
b. Discoloration
c. Bottom deposits
d. Aquatic life

ACUTE TOXICITY MONITORING

Acute bioassay samples shall be collected once during each calendar quarter. If any acute toxicity bioassay test result is less than 70 percent survival, or the results of the three previous samples indicate a median survival of less than 90 percent, the Discharger shall conduct three additional tests over a six-week period. The Discharger shall ensure that results of a failing acute toxicity test are received within 24 hours of the completion of the test, and the additional tests shall begin within 3 business days of the receipt of the result. If the additional tests indicate compliance with acute toxicity limitation, the Discharger may resume regular testing. Of the three accelerated tests, if the results of any single test is less than 70 percent survival, or any two tests are less than 90 percent survival, then the Discharger shall conduct a Toxicity Reduction Evaluation in accordance with the provisions of the Order.

CHRONIC TOXICITY MONITORING

Chronic toxicity monitoring shall be conducted to determine whether the effluent is contributing toxicity to the receiving water. The testing shall be conducted as specified in USEPA 821-R-02-013 or its most recent edition. Samples shall be representative of the volume and quality of the discharge. Time of collection of samples shall be recorded. The effluent tests must be conducted with concurrent reference toxicant tests. Monthly laboratory reference toxicant tests may be substituted upon approval. Both the reference toxicant and effluent test must meet all test acceptability criteria as specified in the USEPA chronic manual. If the test acceptability criteria are not achieved, then the Discharger must resample and retest within 14 days. If undiluted effluent exhibits toxicity, the Discharger shall conduct the test again, using a dilution series bracketing the concentration of effluent in the receiving water. Dilution water shall be receiving water from Cottonwood Creek, taken at R-1, upstream from the discharge point. Laboratory water may be used for dilution water if upstream water exhibits toxicity. Chronic toxicity monitoring shall include the following:

Species: Pimephales promelas, Ceriodaphnia dubia, and Selenastrum capricornutum

Frequency: Once during each calendar year.

PRIORITY POLLUTANT MONITORING

The State Implementation Policy (SIP) requires periodic testing for the toxic priority pollutants established by the CTR in 40 CFR 131.48. The Discharger shall conduct two additional sampling events to provide additional information on effluent priority pollutants.

The Discharger shall conduct two sampling events and analyses for the CTR pollutants in receiving water and effluent. The first sampling event shall be conducted **within one year of the adoption of this Order**. The second sampling event shall be conducted no later than **one year prior to permit expiration**. Receiving water samples shall be collected upstream at receiving water station R-1. Receiving water and effluent samples shall be collected simultaneously, and analyzed for the CTR pollutants (identified in Attachment E) plus pH and hardness. The Discharger is not required to perform dioxin and asbestos monitoring. All analyses shall be performed at a laboratory certified by the California Department of Health Services. The laboratory is required to submit the Minimum Level (ML) and the Method Detection Limit (MDL) with the reported results for each of the analytes. Laboratory methods and limits shall be as described in the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (2000), unless a variance has been approved by the Executive Officer. If, after a review of the monitoring results, it is determined that the discharge causes, has the reasonable potential to cause, or contributes to in-stream excursions above water quality objectives, this Order will be reopened and limitations based on those objectives will be included. Additionally, if pollutants are detected, but insufficient information exists to establish an effluent limit or determine if an effluent limit is necessary, then additional monitoring will be required to provide sufficient information. Results shall be reported within **90 days of sample collection.**

All organic analyses shall be by Gas Chromatography/Mass Spectrometry (GCMS), Method 8260B for volatiles and Method 8270C for semi-volatiles. Pesticides shall be analyzed by Method 8081A. Dioxins shall be analyzed by Method 1613/8290. If organic analyses are run by Gas Chromatography (GC) methods, any detectables are to be confirmed by GCMS. Inorganics shall be analyzed by the following methods:

Metals shall be analyzed by the US EPA methods listed below. Alternative analytical procedures may be used with approval by the Regional Board if the alternative method has the same or better detection level than the method listed.

Method Description	EPA Method	Constituents
Inductively Coupled Plasma/Mass Spectrometry (ICP/MS)	1638	Antimony, Beryllium, Cadmium, Copper, Lead, Nickel, Selenium, Silver, Thallium, Total Chromium, Zinc
Cold Vapor Atomic Absorption (CVAA)	1631	Mercury
Gaseous Hydride Atomic Absorption (HYDRIDE)	206.3	Arsenic
Flame Atomic Absorption (FAA)	218.4	Chromium VI
Colorimetric	335./ 2 or 3	Cyanide

Analysis for the dioxin congeners shall be performed as described in the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* using High Resolution Mass Spectrometry.

The laboratory is required to submit the Minimum Level (ML) and the Method Detection Limit (MDL) with the reported results for each constituent. The MDL should be as close as practicable to the U.S. EPA MDL determined by the procedure found in 40 CFR Part 136. The results of analytical determinations for the presence of chemical constituents in a sample shall use the following reporting protocols:

a. Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory.

b. Sample results less than the reported ML, but greater than or equal to the laboratory's MDL, shall be reported as "Detected but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

c. For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration." Numerical estimates of data quality may be by percent accuracy (+ or – a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

d. Sample results that are less than the laboratory's MDL shall be reported as "Not Detected" or ND.

COLLECTION SYSTEM OVERFLOW MONITORING

The Discharger shall report any collection system overflows in accordance with the Standard Provisions, and discuss the overflows in the monthly monitoring reports.

REPORTING

Monitoring results shall be submitted to the Regional Board by the **1st day of the second month** following sample collection (e.g., the January report is due by 1 March). Quarterly and annual monitoring results shall be submitted by the **1st day of the second month** following each calendar quarter and year, respectively. Effective in January 2004, any NPDES effluent monitoring report received more than 30 days after its due date is subject to a $3000 Mandatory Minimum Penalty [Water Code Section 13385]. An additional $3000 penalty is required for each 30 days a report is late. If you have no discharge, you must still submit a report indicating that no discharge occurred, or you will be subject to the $3000 Penalties.

In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly the compliance with waste discharge requirements.

If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the discharge monitoring report form. Such increased frequency shall be indicated on the discharge monitoring report form.

By **30 January** of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

1. The names, certificate grades, and general responsibilities of all persons employed at the treatment plant (Standard Provision A.5).
2. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.
3. A statement certifying when flow meters and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration (Standard Provision C.6).
4. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.

The Discharger may also be requested to submit an annual report to the Regional Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

All reports submitted in response to this Order shall comply with the signatory requirements of Standard Provision D.6.

The Discharger shall implement the above monitoring program on the first day of the month following effective date of this Order.

Ordered By: _____

THOMAS R. PINKOS
Executive Officer

_____

(Date)

BJS
01/19/2005